DEPARTMENT OF THE ARMY
Wilmington District, Corps of Engineers
Post Office Box 1890
Wilmington, North Carolina 28402-1890

Action ID. 200021655 Date: November 25, 2003
Applicant: Piedmont Triad Airport Authority (PTAA)

Waterways: Brush Creek, including unnamed tributaries and their adjacent wetlands

ENVIRONMENTAL ASSESSMENT, 404(B)(1) ANALYSIS, FINDING OF NO SIGNIFICANT IMPACT, AND STATEMENT OF FINDINGS

This document constitutes my Environmental Assessment, Finding of No Significant Impact (FONSI), Statement of Findings, and review and compliance determination according to the 404(b)(1) Guidelines for the proposed work.

This permit action is being taken under authority delegated to the Wilmington District Engineer by the Secretary of the Army and the Chief of Engineers by Title 33, Code of Federal Regulations, Part 325.8, pursuant to:

_____ Section 10 of the Rivers and Harbors Act of 1899.
__X__ Section 404 of the Clean Water Act.
_____ Section 103 of the Marine Protection, Research and Sanctuaries Act.
_____ Section 4(e) of the Outer Continental Shelf Lands Act of 1953.

I. Proposed Project: Piedmont Triad Airport Authority (PTAA) has applied for a Department of the Army (DA) permit to discharge fill material into 26.01 acres of jurisdictional waters of the United States (U.S.) through the mechanized landclearing and associated discharge of fill material into Brush Creek, several of its unnamed tributaries, and their adjacent wetlands. The proposed project is associated with the development of facilities at Piedmont Triad International Airport (PTIA) that would provide airside, landside, and surface transportation improvements to support the development and efficient operation of an overnight, express air cargo hub facility at PTIA, and which would enable the airport to effectively meet future estimated levels of activity. The needed improvements would include an airfield system capable of providing a redundant transport-category runway system with a minimum length of 9,000 feet, an airfield system capable of allowing the ability to conduct dual simultaneous independent operations, which meets a proposed client's operational requirements. The location and size of the improvements would allow Federal Express (FedEx), the applicant's prospective client, to establish and operate a Mid-Atlantic Hub facility in a flexible and efficient manner and would assist in meeting PTIA's future developmental needs. The project, as originally proposed, would involve impacting 14,937 linear feet of stream channel (2.62 acres) and 23.39 acres of adjacent wetlands. The project, as now proposed, is planned to be constructed in two phases (Phase I & Phase II). Construction for Phase I is scheduled to begin in 2004. Phase I includes the construction of Runway 5L/23R, parallel Taxiway H, a single connecting taxiway (Taxiway E-connecting the north end of the new runway), the initial air cargo site, and roadway improvements to Bryan Boulevard, North Triad Boulevard, and Old Oak Ridge Road. The Phase I development would result in 20.61 acres of jurisdictional wetland impacts and 9,577 linear feet of jurisdictional stream channel impacts to Brush Creek. The Phase I facilities meet the planned needs for PTIA operations including the air cargo operations. Phase I demonstrates independent utility as the development associated with that phase would function alone without construction of Phase II.

For the purposes of this DA permit action, Phase II impacts are also being considered. Phase II is included in the master plan for PTIA, but as stated by the applicant, will be constructed only as PTIA operations demand. The master plan anticipates construction of Phase II in 2009. Phase II includes the construction of a second connecting taxiway (Taxiway D-connecting at the south end of the new runway), a second parallel taxiway on the west side of the runway (Taxiway G) and the expansion of the air cargo facilities. The Phase II development would result in approximately 2.32 acres of jurisdictional wetlands impacts and approximately 3,246 linear feet of jurisdictional stream channel impacts to Brush Creek. Again, for the purpose of this DA permit action, impacts to jurisdictional waters associated with both phases of the airport expansion are being considered and any DA permit authorization will include both proposed phases of development.

The original permit request was advertised by public notice on September 5, 2000. The original project involved the discharge of 1,174,582 cubic yards of clean fill material into 26.01 acres of jurisdictional waters of the United States, including wetlands. The original proposal proposed impacts to 14,937 linear feet (2.62 acres) of jurisdictional stream channels and 23.39 acres of wetlands adjacent to Brush Creek and several of its unnamed tributaries. Throughout the permitting process, the applicant performed further efforts to avoid and minimize jurisdictional impacts. The present proposal is to discharge 1,450,399 cubic yards of fill material into a total of 24.18 acres of jurisdictional waters, including 12,823 linear feet of stream channels (1.25 acres) and 22.93 acres of wetlands adjacent to Brush Creek and its unnamed tributaries.

The United States Department of Transportation (USDOT) Federal Aviation Administration (FAA) completed a Final Environmental Impact Statement (FAA-FEIS) for the proposed airport expansion, which was approved by the FAA on November 11, 2001. A Record of Decision (ROD) for the project was also completed by the FAA, and approved on December 31, 2001. While the scope of analysis for the purpose of this document is limited to the activities sought to be authorized by this requested permit, the Corps of Engineers (Corps) has reviewed the FAA-FEIS and FAA-ROD, evaluated the anticipated impacts outlined therein, and generally concurs with the findings in these documents.

II. Environmental Setting: I generally concur with the FAA-FEIS discussion of the project's environmental setting as discussed in Chapter 4.3, pages 4-1 through 4-74. The following information supplements information provided in the FAA-FEIS regarding jurisdictional waters of the United States, including wetlands, that would be impacted by the proposed project, based upon site inspections conducted by Regulatory Division staff members.

The proposed development site is located to the east and west of the main branch of Brush Creek. Proposed impacts associated with the new runway and the overnight express air cargo sorting and distribution facility are confined to small headwaters tributaries that flow into the main branch of Brush Creek. The presence of eroded stream banks and silted channels in these tributaries is evidence of ongoing stream degradation. This degradation is most likely a result of past upland development at the airport and surrounding properties. These severely impacted headwater stream channels provide very little aquatic function to the Brush Creek watershed and in many cases result in the conveyance of high ground runoff that is a detriment to the downstream aquatic habitat of Brush Creek.

The proposed taxiway connector from the existing runway to the new runway and the relocation of Bryan Boulevard would impact the main branch of Brush Creek and its adjacent wetlands. Brush Creek drains into Lake Higgins, one of the water supply reservoirs for the City of Greensboro, approximately 3 miles downstream from the impact site. Water from Lake

Higgins ultimately drains into the Haw River, and finally into the Cape Fear River, a navigable-in-fact waterbody. The main branch of Brush Creek has fairly stable stream channel banks, but the stream channel substrate has been degraded by heavy silt loads resulting from surrounding development and the degradation of headwater tributaries adjacent to that development. The main branch of Brush Creek flows through a high quality, mature, riverine bottomland hardwood forest. This bottomland hardwood forest covers approximately 99 acres of PTIA property running adjacent to both banks of the main branch of Brush Creek as Brush Creek crosses PTIA property from south to north. The bottomland hardwood forest continues a short distance further north of PTIA property before being cut off by the existing Bryan Boulevard. Brush Creek continues north of Bryan Boulevard through residential and golf course development that either has degraded or destroyed high quality riverine habitat and impacted associated stream channels of Brush Creek. While the main branch of Brush Creek has experienced degradation over the years, the remaining wetlands adjacent to Brush Creek located on PTIA property can be characterized as mature riverine bottomland hardwood forests, which function to reduce flooding from upland development; remove sediments, pollutants and excess nutrients; and provide a wildlife corridor adjacent to a main body of water within a rapidly urbanizing area.

The applicant presently proposes to impact 24.18 acres of jurisdictional waters and adjacent wetlands to Brush Creek out of a total of approximately 99 acres of the riverine bottomland hardwood wetlands located on the PTIA property to construct the proposed runway and air cargo hub facilities. These wetlands are located downstream of current facilities and future proposed airport facilities, and serve as a buffer to the downstream water supply. The bottomland hardwood wetland systems on the property can be characterized as having a well-developed canopy dominated by green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*) and yellow poplar (*Liriodendron tulipifera*) over a subcanopy of box elder (*Acer negundo*), black willow (*Salix nigra*), tag alder (Alnus serrulata) silky dogwood (*Cornus stricta*) and Chinese privet (*Ligustrum sinense*). The herbaceous layer is fairly well developed and is dominated by jewelweed (*Impatiens capensis*), softstem bulrush (*Scirpus validus*), soft rush (*Juncus effuses*), Japanese honeysuckle (*Lonicera japonica*), and greenbrier (*Smilax rotundifolia*).

According to the United States Department of Agriculture Soil Conservation Service's (now known as the Natural Resource Conservation Service, "NRCS") published soil survey of Guilford County dated December 1977, approximately 85% to 90% of the wetland system is mapped as Chewacla sandy loam, which contains inclusions of Wehadkee soils. Chewacla series soils are found in nearly level floodplains being somewhat poorly drained soils, with moderate permeability, and moderate available moisture capacity. These soils are non-hydric, but are known to contain various hydric inclusions, such as Wehadkee, which are soils series that are characterized as being poorly drained, moderately permeable soils. In most portions of the Brush Creek wetland system, periodic overbank storm-water flow from Brush Creek itself and its adjacent small tributaries supplement ground water interception within the wetlands. Portions of the site also show evidence of beaver activity, which would result in longer duration of flooding events and further removal of sediment, pollutants and excess pollutants.

The U.S. Fish and Wildlife Service (USFWS) lists the American bald eagle (*Haliaeetus leucocephalus*) as the only Federally protected species for Guilford County. The applicant considered all federal, state and North Carolina Department of Agriculture listed species within the detailed study area, which included surrounding counties as discussed in the FAA-FEIS Summary of Findings in Chapter 4.4.3, Pages 4-74 through 4-77. Furthermore, concurrence from the U.S. Department of the Interior was provided by the USFWS in a letter dated June 2, 2000, stating that "it concurs with the FAA's findings that this project is not likely to adversely affect

any Federally listed species, their formally designated critical habitat, or species currently proposed for federal listing under the Act." (See pages 5-203 through 5-210 in Chapter 5.10, and page 62 of the FAA-ROD, and USFWS letter dated June 2, 2000, located in Appendix A). The USFWS had no further comments with respect to threatened or endangered species following our public notice dated September 5, 2000.

As discussed in the FAA-FEIS and the FAA-ROD, the FAA has conducted surveys for architectural resources, and has coordinated with the State Historic Preservation Officer (SHPO) regarding architectural and archaeological resources. As a result, appropriate mitigation for adverse effects on National-Register-listed or -eligible historic architectural resources has been developed by the FAA in consultation with the SHPO and interested parties. A copy of the Memorandum of Agreement (MOA) to mitigate adverse impacts associated with the preferred alternative for the proposed project pursuant to 36 CFR 800.6 (c) is included in Appendix G of the FAA-FEIS. The District Engineer is otherwise unaware of the presence of any additional, similar resources.

As discussed in the FAA-FEIS and the FAA-ROD, development of all of the build alternatives would result in unavoidable impacts to 100-year floodplains. These floodplains are regulated by Executive Order 11988, which recognizes the importance of such areas in minimizing the impact of floods on human safety, health, and welfare. Due to safety, operational, and/or engineering demands, the FAA has determined that no practicable build alternative exists that would avoid affecting the floodplain's natural and beneficial values. Measures to mitigate these impacts have been identified and will be implemented as is outlined on Page 6-47 in Chapter 6.3.7, Mitigation, of the FAA-FEIS.

III. Environmental and Public Interest Factors Considered:

A. Purpose and need: The purpose for the proposed project is to support facilities at PTIA that would provide airside, landside, and surface transportation improvements to support the development and efficient operation of an overnight, express air cargo hub facility at PTIA.

B. Alternatives [33 CFR 320.4(b)(4), 40 CFR 230.10]:

(1) No action: I find that the discussion found in Pages 3-12 through 3-50 in Chapter 3 of the FAA-FEIS adequately describes the no-action alternative as required by NEPA and the guidelines codified at 40 CFR 230.10 (hereinafter the "404(b)(1) Guidelines"). A review of the information provided revealed that the no-action alternative would not meet any of the purpose and need criteria for the proposed project at PTIA, proposed by PTAA. Not only would this alternative not provide redundant 9000-foot transport-category runways, but it would also not be able to provide the ability to conduct dual simultaneous independent IFR operations or efficient head-to-head operations, or provide an air cargo sorting/distribution facility site that would meet the operational requirements of the proposed air cargo hub.

(2) Alternative Sites: I find that the discussion found in Pages 3-12 through 3-50 in Chapter 3 of the FAA-FEIS also adequately discusses alternatives as required by NEPA and the 404(b)(1) Guidelines.

The main project elements, consisting of a new runway and cargo hub, have been planned since 1968 in the Master Plan, which was later updated in 1974 and again in 1994. Due to a prospective client, the potential to construct an air cargo facility has simply expedited the proposed improvements associated with the applicant's long-range plans for airport facility

expansion. FedEx's search for an appropriate host facility has been documented in the FAA-FEIS; however, since PTAA is the project applicant and the air cargo hub has been part of PTAA's long-range plan for several years, those off-site alternatives not involving PTAA do not meet the applicant's purpose and need. Off-site alternatives presented in Pages 3-12 through 3-13 in Chapter 3.3.1 of the FAA-FEIS have been shown not to be reasonable, practicable, or feasible for PTAA, as none of the off-site alternatives met the Level I screening criteria for project alternatives as discussed on Pages 3-28 in Chapter 3.3.3.2. Our Section 404 public interest review focuses on only those alternatives reasonably available to the applicant. Therefore, onsite alternatives were determined to be the only reasonable, practicable, or feasible alternatives that would meet the project's purpose and need.

(3) Alternative Designs: I find that the discussion found in Pages 3-12 through 3-50 in Chapter 3 of the FAA-FEIS adequately discusses alternative designs for the project as required by NEPA and the 404(b)(1) Guidelines.

The FAA-FEIS screening process evaluated 42 alternatives for their ability to fully satisfy all of the purpose and need criteria. Specifically, the alternative had to satisfy Level 1 screening criteria, which involved the development of an air cargo sorting/distribution hub facility capable of providing redundant 9,000-foot Transport-Category runways, an ability to conduct dual simultaneous independent IFR operations and efficient head-to-head operations, and provide approximately 300 contiguous acres in a rectangular shape located between parallel runways for the development of the air cargo sorting/distribution facility. Results of the Level 1 screening are found in Table 3.3.3-1 of the FAA-FEIS.

As a result of the Level 1 screening, five build alternatives and the no-action alternative were carried forward to Level 2 screening. The Level 2 screening criteria evaluated the alternatives in terms of constructability issues, cost considerations, and environmental impacts as discussed on Page 3-34 of Chapter 3.3.3.3 of the FAA-FEIS. All six alternatives were carried forward to final level of screening. This level of screening involved detailed review of the alternatives with regard to environmental consequences as is discussed in Pages 5-1 through 5-294 in Chapter 5 of the FAA-FEIS. These results of the final screening are found in Table 3.4-1 and discussed in Pages 3-48 through 3-49 in Chapter 3.5 of the FAA-FEIS. While the no-action alternative is the environmentally preferred alternative, it would not provide PTAA with any of the facilities necessary to meet its stated purpose and need. When considering the five build alternatives that meet the purpose and need for the project, Alternative W1-A1, also known as 5L/23R, would result in the least overall impacts to jurisdictional waters of the United States, including wetlands. The FAA-FEIS concluded that W1-A1 (5L/23R) is the preferred build alternative, which is the alternative that was submitted in PTAA's request for DA permit authorization for the proposed project. I concur with the FAA's finding that Alternative W1-A1 is the least environmentally damaging, practicable alternative. A more detailed discussion of avoidance and minimization of impacts to waters and wetlands follows in the next portion of this document.

(4) The February 6, 1990 Corps/U.S. Environmental Protection Agency (EPA) Memorandum of Agreement (MOA) established procedures to determine the type and level of mitigation necessary to comply with the Clean Water Act Section 404(b)(1) Guidelines. The MOA provides for first, avoiding impacts to waters and wetlands through the selection of the least environmentally damaging, practicable alternative; second, taking appropriate and practical steps to minimize impacts on waters and wetlands; and finally, compensating for any remaining unavoidable impacts to the extent appropriate and practical. To determine "appropriate and practical" measures to offset unavoidable impacts, such measures should be appropriate to the

scope and degree of those impacts, and practicable in terms of cost, logistics, and technology in light of the overall project purpose. In addition, a similar alternatives analysis is necessary to satisfy the requirements of Executive Order 11988. Finally, the MOA addresses the need for appropriate and practicable compensatory mitigation for unavoidable adverse impacts, which remain after all appropriate and practicable minimization has been performed.

Avoidance, minimization, and compensatory mitigation for this project were discussed throughout the permit review process. I find that the FAA-FEIS and ROD, as supplemented by the information provided below, adequately address the issues of avoidance, minimization, and compensatory mitigation.

The following information addresses these issues and our consideration of them:

(a) Avoidance: Complete avoidance of potential impacts to jurisdictional waters, including wetlands, associated with the project is not practicable when considering the project's purpose and need and the large area of land disturbance required for the proposed project. The FAA-FEIS documents that significant efforts have been made to avoid impacts to jurisdictional waters, including wetlands, through consideration of 42 build alternatives and the no-action alternative for the proposed project. The proposed project alternative avoids impacts to approximately 76% of the on-site wetlands and 76% of on-site stream channels.

(b) Minimization: The proposed project alternative, which was submitted with the DA permit request on September 5, 2000, impacted approximately 24% of on-site jurisdictional waters, including wetlands. Other project alternatives considered in the FAA-FEIS involved impacts to potentially 37% of the on-site jurisdictional waters. To further minimize impacts proposed by PTAA's initial request, the applicant proposed several alternative designs. First, the air cargo sorting/distribution hub was moved as far southeast as possible to avoid and minimize impacts to the jurisdictional waters and wetlands of Brush Creek. The Old Oak Ridge Road/ Bryan Boulevard interchange as reconfigured, which included the construction of ramp bridges. The proposed runway was moved southwest, crossing the wetlands at their most narrow point, which further minimized impacts to the wetlands adjacent to Brush Creek north of Bryan Boulevard. The applicant also moved the proposed new taxiway to cross jurisdictional waters at their narrowest point and redesigned the proposed new taxiway to avoid and minimize jurisdictional waters impacts through side-slope maximization and use of retaining walls. Since submittal of its application to the Corps, PTAA has reduced 0.46 acre of jurisdictional wetland impacts and 2,114 linear feet of stream channel impacts from the original project design. Since the applicant has requested DA authorization for a worst-case build scenario, the applicant anticipates further avoidance and minimization as construction plans become finalized and the accurate limits of fill within jurisdictional areas are identified as fill slopes are modified once 100% construction drawings are complete.

Mitigation proposals associated with the project plans are based on conservative worst-case scenarios of total impacts. The applicant applied for the worst-case scenario due to the timeframes typically associated with reviewing similar large scale projects that contain multiple construction phases. Phase I would involve the construction of all aspects of the project, with the exception of Taxiway D and the second phase of the air cargo hub, which are proposed to begin construction in 2009. Presently, plans for the entire project are in various stages of design and delaying the project until all designs are finalized was not deemed a viable option for the applicant; therefore, the applicant decided to apply for worst case scenario, recognizing that the impacts to jurisdictional waters of the United States would continue to decrease as plans became finalized. It is likely that project plan and grade refinements will result

in tightening of toe slopes at fill areas due to final project component alignments and elevations during final design. For example, the new parallel runway, for permit impact assessment purposes, is set at the maximum elevation resulting in maximum potential impacts to jurisdictional areas. It is anticipated that this elevation will ultimately be set lower and thus impacts would likely decrease accordingly. Therefore, the compensatory mitigation proposed for unavoidable impacts to jurisdictional waters is designed to mitigate the worst-case scenarios associated with the project construction. For the purpose of issuance of a Section 404 permit, compensatory mitigation has been assessed in regard to lost and impaired functions to jurisdictional waters, including wetlands that would result from impacts associated with the proposed airport expansion project. While it is our expectation that actual impacts to waters and wetlands would be somewhat less than those analyzed in this document, the mitigation submitted by the applicant includes all currently proposed impacts to waters and wetlands.

(c) Compensatory Mitigation: PTAA's proposed compensatory mitigation plan for unavoidable impacts to jurisdictional waters of the U.S., including wetlands associated with the proposed airport expansion project titled "Wetland and Stream Mitigation Plan" dated December 28, 2001, was received by the Raleigh Regulatory Field Office on January 11, 2002, and later published on public notice by the Raleigh Regulatory Field Office for public and agency review and comment on February 5, 2002.

The revised plans provided with the proposed project mitigation plan show that the proposed construction of the new runway 5L/23R, a new overnight express air cargo sorting and distribution facility, and associated development at PTIA would impact 22.93 acres of jurisdictional wetlands and 12,823 linear feet of jurisdictional stream channel, totaling 24.18 acres of impacts to the jurisdictional waters of Brush Creek and its adjacent wetlands. These proposed unavoidable impacts are associated with 12.11 acres of fill within jurisdictional waters resulting from the proposed new runway and taxiway construction, 4.61 acres of fill within jurisdictional waters resulting from the proposed air cargo sorting/distribution hub facility construction, and 7.46 acres of fill within jurisdictional waters resulting from the proposed roadway improvements to Bryan Boulevard, North Triad Boulevard, and Old Oak Ridge Road.

The revised plans and additional information provided by the applicant also discussed that the proposed project is planned to be constructed in two phases (Phase I & Phase II). Construction for Phase I is scheduled to begin in 2004. Phase I includes the construction of Runway 5L/23R, parallel Taxiway H, a single connecting taxiway (Taxiway E-connecting the north end of the new runway), the initial air cargo site, and roadway improvements to Bryan Boulevard, North Triad Boulevard, and Old Oak Ridge Road. The Phase I development would result in 20.61 acres of jurisdictional wetlands impacts and approximately 9,577 linear feet of jurisdictional stream channel impacts to Brush Creek. The onsite mitigation planned (i.e. preservation, creation, and restoration of 97.2 acres of wetlands and preservation and restoration of 20,817 linear feet of stream channels) provides the required compensatory mitigation credits necessary to compensate for the proposed fill impacts to the jurisdictional waters of Brush Creek associated with the Phase I construction. The Phase I facilities meet the planned needs for PTIA operations including the air cargo operations. Phase I demonstrates independent utility as it involves development that would function alone without construction of Phase II. For the purposes of this DA permit action, Phase II impacts are also being considered. Phase II is included in the master plan for PTIA, but as stated by the applicant, will be constructed only as PTIA operations demand. The master plan estimates construction of Phase II in 2009. Phase II includes the construction of a second connecting taxiway (Taxiway D-connecting at the south end of the new runway), a second parallel taxiway on the west side of the runway (Taxiway G) and the expansion of the air cargo facilities. The Phase II development would result in 2.32 acres

of jurisdictional wetlands impacts and approximately 3,246 linear feet of jurisdictional stream channel impacts to Brush Creek. Compensatory mitigation would be provided for Phase II by stream and wetland restoration proposed at the Causey Farms Site. Again, for the purpose of this DA permit action, impacts to jurisdictional waters associated with both phases of the airport expansion are being considered and any DA permit authorization will include authorization for both proposed phases of development.

PTAA proposes to provide compensatory mitigation for unavoidable impacts to jurisdictional waters of the U.S., including wetlands, associated with the proposed airport expansion project through the restoration, creation, and preservation of approximately 101 acres of wetlands and approximately 27,396 linear feet of stream channels through a combination of on-site and off-site mitigation in the Brush Creek, Horsepen Creek and North Prong of Stinking Quarter Creek watersheds. Specifically, PTAA's proposal includes a large portion of on-site mitigation with 96% of wetland mitigation and 78% of stream channel mitigation occurring on-site.

Initially, compensatory mitigation was to be accomplished through a combination of methods and be performed at a few different sites. A brief description of the proposed mitigation follows; for a more complete discussion of the mitigation associated with this project, please see "Wetland and Stream Mitigation Plan" dated December 28, 2001. However, portions of the mitigation proposal were altered by the permittee by letter dated November 3, 2003, due to constraints that will be addressed in the subsequent paragraphs.

On-site mitigation: Onsite mitigation would involve work adjacent to Horsepen Creek, a perennial stream that flows through Longview Golf Course southeast of the airport. Work on this site would include the restoration of 2 acres and creation of 12.6 acres of floodplain wetlands, along with the restoration of 6,107 linear feet of stream channel. This work would mitigate for 14% of the wetlands and 23% of stream channels associated with the project. The permittee has purchased this developed golf course, which includes the historically channelized and relocated Horsepen Creek. This stream is fairly entrenched and is no longer able to access its historic floodplain and adjacent wetlands. Fairways are currently being maintained in grass to the edge of the eroding bank of Horsepen Creek. This portion of the mitigation plan will involve a Priority I Restoration of Horsepen Creek on a new alignment based upon the Stream Mitigation Guidance jointly produced by the U.S. Army Corps of Engineers (USACE), EPA, North Carolina Water Resources Commission (NCWRC) and North Carolina Division of Water Quality (NCDWQ). This mitigation would allow the stream to access its floodplain on the 1.5 year flood interval, thereby restoring historic hydrologic regimes to the previously altered wetlands and created wetlands within the floodplain.

Compensatory mitigation within the Brush Creek stream channel and bottomland hardwoods wetlands located on the north side of the airport property would include 69.9 acres of preservation, 7.4 acres of restoration, and 5.3 acres of creation of floodplain wetlands, and the restoration of 200 linear feet of stream channel and preservation of 14,510 linear feet of stream channel. This portion of the onsite mitigation comprises 82% of the total wetland mitigation and 55% of the total stream mitigation required for the proposal, and includes the preservation of the main branch of Brush Creek and its adjacent wetlands. This area has experienced substantial degradation over recent years from development of the airport facility, development and public highway construction and development of adjacent off-site properties. The remaining on-site streams carry excessive amounts of silt and sediment, which has altered benthic and macrobenthic species; thereby, ultimately impacting the overall aquatic community within those streams. While this portion of the onsite mitigation concentrates primarily upon preservation of

wetlands and streams, an additional 7.4 acres of wetlands would be restored and 5.3 acres of wetlands would be created from uplands adjacent to Brush Creek. These areas would continue to function to reduce flooding from upland development, remove sediments, pollutants and excessive nutrients, and provide a wildlife corridor adjacent to a main body of water within a rapidly urbanizing area. Restoration will be accomplished through the removal of fill in historic wetlands to restore wetland soils, hydrology and vegetation. Upland buffers are also considered a component of the mitigation package, which should provide additional wildlife habitat, flood attenuation, sediment, nutrient and pollutant removal, and effective stormwater management and preservation of the remaining mature bottomland hardwoods from future development by either PTAA or adjacent development. This component of the mitigation package would continue to benefit the aquatic health of the ecosystem upstream of Lake Higgins.

Offsite Mitigation: Initially, the applicant proposed offsite compensatory mitigation through the restoration of 2,520 linear feet of stream channel within the Haw River Basin, which would include sections of Staley Creek in North Park and Robinson Park and a tributary to Little Alamance Creek in Willowbrook Park located in Alamance County. These properties are owned by the City of Burlington Parks and Recreation Department, and would total 9% of the stream channel component of the compensatory mitigation plan. These sites are existing, developed city parks with jurisdictional stream channels that have been channelized and degraded by surrounding development. The applicant initially proposed to mitigate through the restoration of each stream utilizing the Wilmington District Regulatory Stream Restoration Guidance. However, on November 3, 2003, the applicant submitted a request to remove this proposal from their mitigation package due to the unlikely success of the sites and a need to acquire necessary legal documentation to utilize the sites as proposed. In its place, the applicant requested that the additional, required stream mitigation be provided by the Causey Farm site.

Another offsite project involves the restoration of North Prong of Stinking Creek, a perennial stream that flows through the Causey Farm property located in southeast Guilford County. Initially, the proposal included the restoration of 4 acres of wetland floodplain and the restoration of 3,400 linear feet of stream channel, comprising 4% of the wetlands and 13% of stream channel of the compensatory mitigation plan total. By letter dated November 3, 2003, that applicant requested that an additional 2,510 linear feet of stream restoration (5,910 linear feet total) be approved for construction at the Causey Farm site to meet the offsite stream mitigation requirements. The Causey Farm property is an existing cattle pasture that is presently grazed and supports minimal riparian vegetation adjacent to the stream channels. It is estimated that approximately 20 acres of the site contains hydric soils, most of which have been hydrologically modified from either ditching to drain historic wetlands within the pasture and/or through degradation and entrenchment of the stream channel. Cattle have not been precluded from any portion of over 6,500 linear feet of stream channel that exists on the property. The proposed mitigation on this site includes Priority I Stream Restoration, along with the filling of ditches to restore historic wetlands and to enhance areas of wetland pasture. Fencing will be provided along all stream channels within the project limits to exclude cattle from the streams, with the exception of 4 low water, gravel stream crossings that would allow cattle and farm vehicles access to alternate pastures.

As an important part of the mitigation plan, most of the stream mitigation sites include upland buffers, generally averaging 50 feet in width to both sides of the channel. Many of the historical functions performed by upland forest and wetland forest habitat complexes in the region have been modified by extensive anthropogenic activities, including farming, urban development, and forestry activities. Wetland buffers and wetland/upland ecotones are important in reducing sediment and nutrient inputs into local streams and rivers. Documented studies have

shown that sediment removal rates of 80 to 90 percent may be expected from vegetative buffers. High ground soils, because of generally higher cation concentrations, are probably more efficient than wetland soils in removing and retaining phosphorous and nitrogen. Therefore, inclusion of uplands in the buffer matrix may attenuate nutrient inputs and enhance the ability of wetland ecosystems to sequester and assimilate elements, nutrients, and compounds. Vegetative buffers can also moderate in-stream water temperatures and increase available dissolved oxygen in cooler waters. They help create and maintain a diversity of aquatic habitat types which in turn provide for a high diversity and abundance of aquatic organisms. Vegetated upland buffers may also enhance groundwater recharge into adjacent wetlands through increased flood storage capacities and dissipated flood waters by frictional resistance and evapotranspiration to desynchronize runoff into wetland and stream channel corridors. Finally, the buffers provide important wildlife habitat and corridors. Approximately 49.5 acres of high ground buffers are included with the onsite mitigation properties and approximately 20 acres of high ground buffers are included with the offsite mitigation properties.

The DA Regulatory Guidance Letter 02-02 recommends the use of a watershed and ecosystem approach when determining compensatory mitigation for unavoidable impacts to jurisdictional waters and wetlands. In compliance with this guidance, the resource needs of the Reedy Fork watershed basin, that includes Brush Creek and Horsepen Creek, were considered in the determination of required compensatory mitigation for the project. As discussed above, maximum effort was put into addressing the resource needs of Brush Creek since this aquatic resource would be directly impacted by the proposed project. Horsepen Creek, which is located immediately to the south of the impact site and is an important watershed to the City of Greensboro's Lake Brandt water supply reservoir, was also considered in the determination of the extent of required compensatory mitigation for the project. The objective of the guidance is to provide functional replacement at a minimum ratio of one-to-one with a margin of error designed to safely reflect anticipated success in an attempt to attain the national policy regarding "No Net Loss". The proposed compensatory mitigation would provide 27.3 acres of onsite restoration and creation of jurisdictional waters to compensate for jurisdictional impacts of 23.93 acres. The onsite mitigation property also includes 69.9 acres of bottomland hardwood wetland preservation, with an average 50-foot wide buffer within uplands surrounding the mitigated wetlands. The project also entails the restoration of 6,307 linear feet and the preservation of 14,510 linear feet of jurisdictional stream channels. Requirements imposed by the NCDWQ, Water Quality Certification Number 3428, require that the applicant incorporate water-supply watershed protection measures in a stormwater management plan specific to the project. Focusing on the replacement of the functions provided by jurisdictional waters, rather than only the calculation of acreage impacted or restored/created, would in most cases provide a more accurate and effective way to achieve the environmental performance objectives of the no net loss policy. In this situation, the onsite mitigation at a minimum compensates for the functional impacts to jurisdictional waters associated with the proposed project. However, to also be in compliance with the February 6, 1990, Corps/EPA MOA that established procedures to determine the type and level of mitigation necessary to comply with the Clean Water Act Section 404(b)(1) Guidelines, guideline mitigation ratios were also considered in the determination of required mitigation for the proposed project. These guideline mitigation ratios were satisfied with the addition of the offsite mitigation at the Causey Farm. In total, the complete mitigation plan provides for appropriate and practicable compensatory mitigation to replace functional losses to aquatic resources associated with impacts to jurisdictional waters that would result from the construction of the proposed airport expansion project within the Cape Fear watershed.

C. Physical/chemical characteristics and anticipated changes.